

WHAT IS CLAIMED IS:

1. A sector antenna apparatus comprising:  
a plurality of horn antennas for radiating beams in different directions;  
and  
an antenna changeover switch for switching between the plurality of  
5 horn antennas,  
wherein at least a first horn antenna of the plurality of horn antennas  
emits beam radiation in a high-angular-resolution direction of the different directions  
and has a large aperture providing a narrow beam width, and at least a second horn  
antenna of the plurality of horn antennas emits beam radiation in a low-angular-  
10 resolution direction of the different directions and has a small aperture providing a  
broad beam width.
2. A sector antenna apparatus according to claim 1, wherein the plurality  
of horn antennas are mounted on a vehicle.
3. A sector antenna apparatus according to claim 2, wherein the horn  
antenna of the plurality of horn antennas having the large aperture emits beam  
radiation in one of a forward direction and a backward direction of the vehicle.
4. A sector antenna apparatus according to claim 2, wherein the horn  
antenna of the plurality of horn antennas having the small aperture emits beam  
radiation in one of a right-side direction and a left-side direction of the vehicle.
5. A sector antenna apparatus according to claim 1, wherein the antenna  
changeover switch is a micromachine high-frequency changeover switch.
6. A sector antenna apparatus according to claim 1, wherein the plurality  
of horn antennas are arranged symmetrically.

7. A sector antenna apparatus according to claim 1, wherein the plurality of horn antennas are arranged in a casing.
8. A sector antenna apparatus according to claim 7, wherein the casing is formed of a conductive metal material.
9. A sector antenna apparatus according to claim 1, wherein the plurality of horn antennas are arranged in the same plane.
10. A sector antenna apparatus according to claim 1, wherein the changeover switch sequentially switches between the plurality of horn antennas.
11. A sector antenna apparatus according to claim 1, wherein the sector antenna apparatus is arranged so as to emit beam radiation from the rear of a vehicle.
12. A sector antenna apparatus according to claim 1, further comprising:
  - a voltage-controlled oscillator;
  - a high-frequency sub-module connected to the voltage-controlled oscillator and the antenna changeover switch; and
  - a control-voltage terminal connected to the voltage controlled oscillator.
13. A sector antenna apparatus according to claim 12, wherein the high-frequency sub-module includes at least one amplifier and a circulator connected between the voltage-controlled oscillator and the antenna changeover switch.
14. A sector antenna apparatus according to claim 13, wherein the high-frequency sub-module further includes a branch coupler connected between the at least one amplifier and the circulator; and a mixer connected with the antenna changeover switch via the circulator and also connected with the branch coupler.
15. A vehicle-mounted transmission and reception apparatus comprising the sector antenna apparatus according to claim 1.